

MANNING MEADOW RESERVOIR



Introduction

Manning Meadow Reservoir is east of Marysvale on the Sevier Plateau. It is a medium sized impoundment of Manning Meadow, a high mountain meadow. Some maps list it as Manning Meadows Reservoir. It is somewhat

remote.

The reservoir shoreline is publicly owned and administered by the Fish Lake National Forest with unrestricted public access. Defined beneficial uses

Characteristics and Morphometry	
Lake elevation (meters / feet)	2,973 / 9,750
Surface area (hectares / acres)	23.8 / 59
Watershed area (hectares / acres)	480 / 1,186
Volume (m ³ / acre-feet)	
capacity	1,230,000 / 996.3
conservation pool	0
Annual inflow (m ³ / acre-feet)	
Retention time (years)	
Drawdown (m ³ / acre-feet)	
Depth (meters / feet)	
maximum	19.93 / 49
mean	5.52 / 18.1
Length (meters / feet)	
Width (meters / feet)	
Shoreline (km / miles)	2.1 / 1.32

Location	
County	Piute
Longitude / Latitude	112 04 00 / 38 29 38
USGS Map	Marysvale Peak, Utah, 1981
Cataloging Unit	Richfield (16030003)

include: water recreation excluding swimming, cold water species of game fish and aquatic life, and agriculture. The DWR has recently acquired the total water right for the reservoir. Currently they use the reservoir to provide habitat for brood stock of cutthroat trout. The fishing regulations are restricted.

Recreation

Manning Meadow Reservoir is not very easily accessed. From the west or the north, access is from Monroe via FS-078. Go south, then southeast out of town,

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following signs to Monrovia Park. At Monrovia Park,

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continue on FS-078 as it turns to gravel and climbs to the top of the plateau. About 12 miles past Monrovia Park, the road (FS-083) to Manning Meadows Reservoir and Barney Lake branches to the right.

From the south or east, take the gravel road 1/2 mile north of the Greenwich church (on U-62 6 miles south of Koosharem) to the west and up onto the Sevier Plateau and becomes FS-069. After about 10 miles (near the Box Creek Reservoirs) turn left on FS-078 and continue about 5 miles to the road to FS-083.

From the FS-078/FS-083 junction, go several miles south on FS-083 to Manning Meadow Reservoir, which is on the east (left) side of the road.

Fishing, backpacking and camping are possible in the area. Usage is light. There are no recreational facilities at the reservoir, although the area offers itself to primitive camping. There are no Forest Service Campgrounds in the area, and the nearest private campgrounds are in Koosharem and Monroe.

Watershed Description

The reservoir is in an area of high, rolling ridges and valleys characteristic of the top of the Sevier Plateau. The meadow extends upstream from the reservoir in a small valley, filled with sedges and bog grasses. The creek flows through the meadow and is neither aggrading nor degrading. The dam itself is built on the site of a mudslide which had also impounded the meadow.

The watershed high point, one kilometer west of the lake, is 3,237 m (10,621 ft) above sea level, thereby developing a complex slope of 28.4% to the reservoir. Manning Creek is the inflow and outlet for the reservoir. Above the reservoir the average stream gradient is 1.9% (98 feet per mile).

The soil is largely of volcanic origin with moderate permeability and moderately slow erosion and runoff.

The vegetation communities are comprised of aspen, spruce-fir and sage-grass. The watershed receives 64 - 76 cm (25 - 30 inches) of precipitation annually with a frost-free season of 20 - 40 days at the reservoir.

Limnological Assessment

The water quality of Manning Meadow Reservoir is good. It is considered to be soft with a hardness concentration value of approximately 31 mg/L (CaCO₃). The only parameters that have exceeded State water quality standards for defined beneficial uses are phosphorus and dissolved oxygen. The average concentration of total phosphorus in the water column in 1992 was 113 ug/L which exceeds the recommended pollution indicator for phosphorus of 25 ug/L. Phosphorus concentration in the hypolimnion have been as high as 396 ug/L and during August 5, 1992 averaged 163 ug/L. These high concentrations of nutrients lead to the

production of algal blooms. Such a high amount of production can lead to anoxic problems in the water column. As depicted in the August 5, 1992 profile these types of conditions manifest themselves. The reservoir is stratified at the 4 meter depth and below that the dissolved oxygen concentrations decline rapidly to a low of 0.5 ug/L near the bottom of the reservoir. Dissolved oxygen concentrations in late summer and winter substantiate the fact that water quality impairments do exist. These conditions are deleterious to the fishery rendered large portions of the water column unsuitable for a fishery. In

Limnological Data

Data sampled from STORET site:
594504

Surface Data	1992
Trophic Status	E
Chlorophyll TSI	57.86
Secchi Depth TSI	48.64
Phosphorous TSI	56.60
Average TSI	54.37
Chlorophyll <i>a</i> (ug/L)	16.1
Transparency (m)	2.2
Total Phosphorous (ug/L)	38
pH	8.7
Total Susp. Solids (mg/L)	<3
Total Volatile Solids (mg/L)	1
Total Residual Solids (mg/L)	2
Temperature (°C / °f)	16/60
Conductivity (umhos/cm)	41

Water Column Data

Ammonia (mg/L)	0.12
Nitrate/Nitrite (mg/L)	0.06
Hardness (mg/L)	31
Alkalinity (mg/L)	33
Silica (mg/L)	7.15
Total Phosphorous (ug/L)	113

Miscellaneous Data

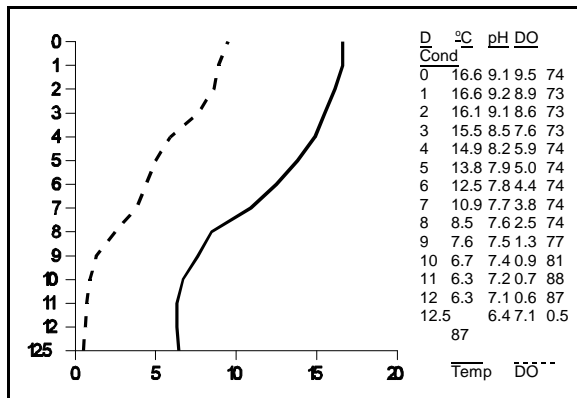
Limiting Nutrient	N
DO (Mg/l) at 75% depth	1.1
Stratification (m)	4-8
Depth at Deepest Site (m)	12.5

addition dissolved oxygen concentrations may reach critical state during the winter period for fish.

Current data suggest that the reservoir is a nitrogen limited system. TSI values indicate that the reservoir is highly productive and classified as a eutrophic system.

According to DWR no fish kills have been reported in recent years. The reservoir supports populations of splake, a cross of brook trout (*Salvelinus fontinalis*) with

lake trout (*Salvelinus namaycush*), and Bonneville cutthroat trout (*Oncorhynchus clarki utah*). DWR maintains a breeding population of these cutthroat trout in the reservoir. The lake was treated for rough fish competition in 1989 so that management of the fishery for these fish could occur. According to recent stocking records, advanced fingerling Bonneville cutthroat trout and Splake (male brook trout X female lake trout) (*Salvelinus fontinalis* male X *Salvelinus namaycush* female) continue to be stocked in the reservoir.



Phytoplankton in the euphotic zone include the following taxa (in order of dominance)

Species	Cell Volume (mm ³ /liter)	% Density By Volume
<i>Gloeotrichia echinulata</i>	11.200	92.44
<i>Anabaena spiroides</i> var. <i>crassa</i>	8.674	7.21
<i>Aphanizomenon flos-aquae</i>	0.317	0.26
<i>Haematococcus</i> sp.	0.067	0.06
<i>Ankistrodesmus falcatus</i>	0.031	0.03
Pennate diatoms	0.008	0.01

Total 120.292

Shannon-Weaver [H']	0.28
Species Evenness	0.16
Species Richness	0.20

The flora is fairly typical, but not particularly diverse. The dominance of blue- green algae and diatoms indicates that the lake has fairly good water quality with eutrophic conditions present in the reservoir.

Pollution Assessment

The only nonpoint source of pollution in Manning Meadow Reservoir is sedimentation and nutrient loading from grazing in the watershed and in the vicinity of the

reservoir. This type of activity is fairly extensive and is contributing to the nutrient load as indicated by the reservoir response in recent years.

There are no point pollution sources in the watershed.

Information

Fish Lake National Forest	896-4491
Richfield Ranger District	896-4491
Henrie Brothers (Reservoir Managers)	
Koosharem Campground, Cafe	638-7310
Monroe Hot Springs Resort	527-4014
Six County Commissioners Association	896-9222
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146

Beneficial Use Classification

The state beneficial use classifications include: boating and similar recreation (excluding swimming) (2B), cold water game fish and organisms in their food chain (3A) and agriculture (4).

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